

CLAIMS:

1. A biological photometer comprising a light source which generates light being irradiated to a subject, a photometer unit which detects light
5 transmitted inside the subject and produces a hemoglobin signal corresponding to hemoglobin density inside the subject and a signal processing unit which prepares hemoglobin variation information of the subject based on the hemoglobin signal and displays the
10 same, characterized in that the signal processing unit is provided with a characteristic extraction unit which extracts characteristics of hemoglobin variation patterns based on the prepared hemoglobin variation information.
- 15 2. A biological photometer according to claim 1, characterized in that further comprising a memory unit which stores characteristics of the hemoglobin variation pattern of normal health and a variety of diseases extracted by the characteristic extraction
20 unit in a form of reference templates.
3. A biological photometer comprising a light source which generates light being irradiated to a subject, a photometer unit which detects light transmitted inside the subject and produces a
25 hemoglobin signal corresponding to hemoglobin density inside the subject and a signal processing unit which prepares hemoglobin variation information of the

subject based on the hemoglobin signal and displays the same, characterized in that the signal processing unit is provided with a memory unit which stores characteristics of hemoglobin variation patterns of normal health and a variety of diseases as reference templates, a characteristic extraction unit which extracts characteristics of hemoglobin variation patterns of normal health and a variety of diseases based on the hemoglobin signal produced by the photometer unit and a judgment unit which judges a disease of the subject through comparison between the extracted characteristic of hemoglobin variation pattern and the reference templates stored in the memory unit.

4. A biological photometer according to any one of claims 1 through 3, characterized in that the characteristic of hemoglobin variation patterns includes at least one of hemoglobin variation pattern curve, latent time, maximum level, time for attaining the maximum level, differential quantitative change and integral quantitative change determined from the curve.

5. A biological photometer comprising;
a light source unit which generates light having a predetermined wavelength in a region from visual to infrared;

an optical fiber which guides the light from the light source unit to a detection portion of a subject

and irradiates the same thereto;

a photometer unit which detects light irradiated from the optical fiber and transmitted inside the subject and produces a hemoglobin signal corresponding to hemoglobin density at the detection portion of the subject; and

a signal processing unit which prepares a hemoglobin variation at the detection portion of the subject along time axis based on the hemoglobin signal from the photometer unit and displays the same, characterized in that,

the signal processing unit is provided with a characteristic extraction unit which extracts characteristics of a hemoglobin variation pattern based on the prepared hemoglobin variation at the detection portion of the subject, a memory unit which stores the characteristics of the hemoglobin variation pattern at the same detection portions of normal health and a variety of diseases in a form of reference templates and a judgment unit which compares between the characteristics of the hemoglobin variation pattern at the detection portion of the subject extracted by the characteristic extraction unit and the reference templates representing the characteristics of the hemoglobin variation patterns at the same detection portions of normal health and a variety of diseases stored in the memory unit and judges whether the subject

is in normal health or in any one of diseases.

6. A biological photometer according to claim 5, characterized in that the judgment unit determines a correlation coefficient ρ between a hemoglobin variation pattern curve of the hemoglobin variation pattern at the detection portion of the subject extracted by the characteristic extraction unit and a hemoglobin variation pattern curve in the reference templates of normal health and a variety of diseases at the same detection portions stored in the memory unit and judges whether the subject is in normal health or in any one of diseases based on the determined correlation coefficient.

7. A biological photometer according to claim 5, characterized in that the judgment unit judges whether the subject is in normal health or in any one of diseases based on a comparison between at least one of latent time, maximum level, time for attaining the maximum, differential change value and integral change value of a hemoglobin variation pattern curve of the hemoglobin variation pattern at the detection portion of the subject extracted by the characteristic extraction unit and the characteristics corresponding to the reference templates of normal health and a variety of diseases at the same detection portions stored in the memory unit.

8. A biological photometer according to claim 3

or 5, characterized in that the signal processing unit
modifies the reference templates at the same detection
portions of the normal health and a variety of diseases
stored in the memory unit by making use of the
5 characteristics of the hemoglobin variation pattern at
the detection portion of the subject extracted by the
characteristic extraction unit and the judgment result
by the judgment unit whether the subject is in normal
health or any one of the diseases based on the
10 characteristics.

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